E/CONF.39/A/30
28 Sept. 1962
ORIGINAL : ENGLISH

UNITED NATIONS CONFERENCE
ON THE APPLICATION OF SCIENCE AND TECHNOLOGY
FOR THE BENEFIT OF THE LESS DEVELOPED AREAS

Agenda Item: A.5.1

Philippines

MINERAL RESOURCES DEVELOPMENT OF THE PHILIPPINES

By Benjamin M. GOZON,
Secretary of Agriculture
and Natural Resources

Papers have been contributed to the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas as working papers for that Conference. They are published as presented by the contributors, and the contents and the views expressed are those of the contributors. (See notes overleaf.)

NOTES

1. Papers selected for inclusion in General Sessions will be available at the Conference in the following official languages of the United Nations: English, French, Russian and Spanish.

2. Papers selected for inclusion in Specialized Sessions will be available at the Conference in only one of the above official languages.

3. Summaries of all papers, as submitted by contributors, will be available at the Conference in the following official languages of the United Nations: English, French, Russian and Spanish.

4. Papers and summaries will not be available for general distribution in advance of the Conference. They will be published in advance in limited quantities only for the use of delegations of participating governments and of other authorized participants. Post-Conference publication and general distribution of the Conference Proceedings will follow United Nations practices as laid down by the United Nations Publications Board.

MINERAL RESOURCES DEVELOPMENT OF THE PHILIPPINES

By Benjamin M. Gozon
Secretary of Agriculture and Natural Resources

Introduction

1. The Philippines is fortunate to be endowed with abundant and varied mineral resources. The country is considered to be one of the most highly-mineralized areas of its size in the Far East. This belief has been expressed before by not a few geologists and mining engineers who have had long experience in Philippine mining. The result of prospecting and exploration in many parts of the country confirms this with actual facts.

2. Despite this fact, however, the Philippines is still far from being industrialized and as such is still considered among the so-called underdeveloped countries. As it is now, the country is still primarily an exporter of raw ores and concentrates as we have not developed a local market for our minerals as yet. The result is that, with the exception of gold mining, only small increments of the intrinsic value of the metals or minerals exported to foreign markets accrue to the country.

3. While there is certainly much to be desired with regard to the status of the mining industry, the present activity in the industry, particularly in the proposals to put up a copper-zinc smelter and a steel mill or two, is an encouraging sign of what lies ahead.

4. However, in a free enterprise economy like ours, the Government can only influence the trend of mineral development. While it is true that the Government may lay out plans of expansion to cope with future needs of the nation, the implementation of these plans and the attainment or non-attainment of desired goals devolves as a rule on the private sector. It is therefore of vital importance that policies and activities of the Government should act as incentives to private sector so that they will be willing and in a position to carry out the plans towards the expected results.

5. Any Government worthy of the name should be aware of the fact that natural resources constitute one of the principal assets of the country. Thru wise husbandry of its natural resources, a country can attain economic stability and reap the fruits generated thereby. In the Philippines among other such resources we have abundant minerals that still lie untapped, unproductive in the bosom of our mountains.

Organization of National Mining Services

6. In order that our mineral assets can be ascertained, developed and made useful to the people, the Mining Act of 1937 and C.A. No. 136 creating the Bureau of Mines were passed during the early stages of the Commonwealth Government.

7. Under the law, the Bureau of Mines has the authority to administer and dispose of the country's mineral wealth for the interest and welfare of the nation. Our Constitution recognizes the so-called Regalian Doctrine which rules that all minerals, whether found in public or private lands, belong to the State, and may be disposed of only by concession, permit or lease to citizens of the Philippines or to parties authorized under the Constitution.

8. Under this provision, the Government determines what valuable minerals are present under our soil and lets the people know what rights they can acquire before mining them and using for our commerce and industries. The principal function of the Bureau of Mines, therefore, is to carry out the provisions of all laws pertaining to the administration and disposition of mines, minerals, mineral lands, and to enforce the rules and regulations concerning them.

Geological and Mineral Surveys

9. A general plan then for economic mineral development would call for the Government to facilitate the expansion of the mining industry and in the right direction. After experiencing the mining boom of 1936 and the subsequent let-down, this was made evident. Because at the time gold mining had already made a very creditable start in the Baguio district, it was believed that the best way to assure that this industry prosper and develop was to conduct a nation-wide, systematic and detailed geological survey of all possible gold areas starting with those already known to be gold-bearing. Why start with known ones? The reason is simple. Because at that time even in producing properties little was known of the true geologic setting of the ore deposits in individual mines, much less of the genetic relationship of these deposits in the region. Without this knowledge, mining would be a hit or miss affair and the chances of rapid expansion would be meager. Detailed geological survey on a regional scale would also assure the availability of new deposits to replace already exhausted ones.

10. While this policy of the Government cannot by any stretch of the imagination be considered as the reason for the tremendous development of the gold mining industry between 1938 and 1941, it cannot be denied that it exerted no small influence. Aside from the equitable provisions of the mining laws, reasonable tax burdens and the generally favorable business and financial conditions of the times, the fact that the Government had at last awakened to the need of a modern systematic geologic and mineral survey and had started to do something about it, must have convinced mining investors that the industry was a good risk. Forthwith, the gold industry grew by leaps and bounds. It may not be amiss to state here that the growth of the pre-war gold mining industry in the Philippines was perhaps unparalleled in the annals of world mining.

11. The plan of regional and detailed geological surveying applied to gold was also applied to other industrial minerals that were being discovered in more and more places throughout the country. The materials of war were needed in the world market. Manganese and chromite were added to our mineral exports of gold and copper concentrates and iron ore.

12. Sometime in 1939, the National Development Corporation, a semi-government corporation, in cooperation with the Bureau of Mines, embarked in mineral exploration activities on a large scale covering the vast lateritic iron resources of Surigao and the country's resources of coal and petroleum. These activities were in the nature of opening up the economic potentialities of our mineral resources where private enterprise was not as yet in a position to enter or was somewhat reluctant.

13. Equally as important in our canvassing of mineral deposits was the decision of our Government authorities to make a bid for some measure of industrialization in our heretofore purely agricultural economy. An agro-industrialization program was initiated which meant greater emphasis was to be accorded basic industries like iron and steel, building materials, power, fuel and fertilizer. This program ushered mineral economic development into a new phase of nation-wide activities.

14. Extensive mineral and geological surveys and drilling exploration were planned on short and long-term basis to supply the necessary raw materials that proposed industrial plants will feed upon. Implementation of these surveys was placed primarily on the shoulders of the Bureau of Mines. This office worked in cooperation with U.S. foreign aid agencies, such as Point 4, Mutual Security Agency, Economic Cooperation Administration, International Cooperative Administration and with the local government's Philippine Council for U.S. Aid (PHILCUSA).

15. Among the first surveys to be conducted under this set-up was that for manganese, a very important strategic mineral and a necessary constituent of steel. Our richer deposit of manganese were gone and replacement even of lower-grade and smaller occurrences were much needed. The survey coverage include the islands of Siquijor and Busuanga and later the Anda Peninsula of Bohol. Knowledge of ore mineralization resulting from this work helped miners in these areas in their operation.

16. The survey for construction materials and sand gravel deposits was carried out mainly in Luzon, and for fertilizer minerals, guano and phosphate rock, in the Visayas and Mindanao early in 1947. In 1953 the Coal Survey and Development of the Strategic Minerals Survey were put in operation.

17. The object of the coal project was to investigate the geology, ore reserves and the characteristics of the coal in 14 of the most important coal areas of the country. The coal project was completed in 1957. The information obtained would be invaluable in the greater exploitation of this fuel resource which is much under-developed as yet.

18. The survey for strategic minerals is on a much bigger and wider scale. It covers ferrous and non-ferrous minerals, such as iron, nickel, copper, chrome, manganese, lead and zinc and radioactive substances. It is really an attempt at a continuing inventory of the metallic mineral resources of the country for the nation's industrialization effort. The survey started in mid-1952, has covered forty-five provinces up to now and still in progress. Every year about half a million hectares is surveyed in reconnaissances, and 10% of which in detail.

19. Completed surveys so far are those of copper deposits all over the islands, the chromite deposits of Zambales, the manganese deposits of Palawan, Bohol and Siquijor, and nickel-iron-lateritic deposits of Nonoc and vicinity in the Surigao Mineral Reservation. An airborne-magnetometer survey of six principal iron areas in Luzon and Mindanao was performed under contract by Hunting Geophysics of London. At the same time a radiometric survey was also made.

Exploration Work

20. Other Government activities in the line of mining promotion are the drilling exploration projects conducted by the Bureau of Mines in connection with the geological and mineral surveys mentioned above. Diamond and/or hand auger drilling made on chromite, manganese, laterite, coal, asbestos, clay and

other deposits disclosed not only valuable geologic information but also their vast economic potentialities as well.

21. We can mention the diamond drilling program conducted by the Bureau of Mines, in cooperation with National Economic Council (NEC) and Agency for International Development (AID), in the Government chromite reservation in Zambales. This exploration work has led to the present leasing of the reservation to a private mining company. Likewise, exploration diamond drilling and hand auger drilling presently being conducted by the Bureau of Mines in the nickel-cobalt-iron-bearing laterites and serpentinites of the Surigao Mineral Reservation has tremendously increased the previous reserve estimates. If the Government's plans to utilize this enormous resources are pushed through, it will mean a big forward boost to our developing economy.

22. Also, in connection with the strategic minerals survey previously mentioned, is the geophysical survey by ground magnetometric method started last year in two operating iron mines in Zamboanga del Sur and Camarines Norte to verify the magnetic anomalies established from the initial airborne-magnetometer survey of these areas. The survey has so far covered a total of 1,400 hectares of detailed work. It is planned to conduct similar studies in other principal iron areas.

23. This drilling work by the Bureau of Mines is also made available to the private parties at minimal fees or the drilling equipment may be leased under certain terms. Small mines or those with limited capital are especially benefited by these services.

24. This does not mean, however, that an inventory of the country's mineral resources is made possible through government efforts alone. Far from it, here as anywhere in the free world, it is private enterprise that performs most of the task. The successful operation of mining companies requires that all reserves be determined as much as possible ahead of mining or exploitation.

25. From a very modest start in exploration drilling, indications of our fuel potential from oil and gas reserves are quite encouraging. Deposits of gas of substantial size have been encountered in Cebu and Cagayan. More recently, the first flowing of oil well was discovered in Maya, Daanbantayan, Cebu. The field is still under study. However, the opinion of oilmen is that prospects in the Philippines are good with only about 5% of the potential areas tested.

Research Studies

26. Metallurgical research studies are conducted on a continuing basis by the Bureau of Mines in cooperation with private industry and with other government agencies. These include investigations on suitable techniques necessary to produce marketable concentrates from low and off-grade ores of iron, copper, chromium, titanium and other base metals.

27. Extended beneficiation studies of feldspathic rocks, gypsum, diatomaceous earth, clays, asbestos, phosphate rock, sulphur and other non-metallic minerals are also conducted to determine their amenability to particular processes. Likewise, tests are made in the continued effort to utilize local coals and other carbonaceous materials for metallurgical and other uses.

28. All these activities have contributed in no small measure to the exploitation of these otherwise non-commercial materials.

Training of Technical Men

29. In order to have the necessary complement of trained men and to help advance local mining, geological and metallurgical know-how, the Bureau of Mines, in cooperation with the NEC-ICA (now AID), Colombo Plan Organization, the Federal Republic of Germany and the International Atomic Energy Agency, is carrying on a traineeship program for its technical personnel.

30. As of June 30, 1962, the Bureau of Mines has sent 64 of its personnel for specialized training abroad under its training grant program: 41 in geology, 9 in mining technology, 11 in metallurgy, and 3 in mineral lands administration.

31. With the assistance of the United Nations, a school of applied geology, a project of the Bureau of Mines in cooperation with the University of the Philippines, is expected to be set up soon. This is another move to further upgrade the training of our technical men in order to develop and expand the mining and mineral industries.

Government Legislation

32. Legislation is also another means that the Government makes use of to foster the development of our mineral resources. From the very beginning of the post-war period, the Bureau of Mines, through the Department of Agriculture and Natural Resources, recommended a number of measures which it believed could push mining rehabilitation at a much faster rate.

33. One of these was the passage of R.A. No. 81 which exempted holders of mining claims from performance of assessment work from 1941 to 1947 inclusive, later amended by R.A. No. 215 with an extended time limit till 1949. Under certain terms and conditions, exemptions from payment of mining, specific and real estate taxes were allowed for the period. This legislation was a very welcome relief to the mining industry. It avoided or at least minimized the confusion and the conflicts that otherwise would have resulted in the relocation of claims where records had been lost or destroyed. A similar legislation was R.A. No. 743 providing protection to locators, lessees and operators of unpatented mining claims and leases by exempting them for the years 1951 to 1953 inclusive from annual assessment work required by existing laws.

34. Other pieces of legislation very helpful to mineral development and the promotion of mining operations were those enacted for the reduction of production tax on all mines to a flat rate of 1-1/2 per cent; exemption from payment of income tax during the first 3 years of actual commercial production for certified new mines and old mines resuming operations under certain provisions; and exemption from the special excise tax of 17% on foreign exchange for imported mining machinery, equipment and supplies for the exclusive use of mining operators themselves.

35. The passage of the Petroleum Act of 1949, together with the publication of the Corby report on the Geology and Oil Possibilities of the Philippines was considered the spark plug that started oil interest in this country. Incidentally, foreign experts are of the opinion that our Petroleum Act is one of the best petroleum laws in the world.

36. The Gold Subsidy Law (R.A. No. 1164) of 1954 kept the majority of gold mines in operation during the past crucial inflationary years. The recent Gold Assistance Act (R.A. No. 3089), later amended by R.A. No. 3472, passed by Congress was another timely attempt to save the gold industry which has contributed so much to the economy of the nation. It was an admission that the industry deserves a better fate. In the meantime, it is hoped that

long-range program can be arranged so that the industry can be revitalized and that the country can continue to produce this monetary commodity, convertible any time and anywhere in the world.

37. What the gold subsidy was to the gold industry, the barter law was to many base metal mines. It had saved many operations from closing down. The base metals had also their ups and downs. Because they have to compete in the world market, when the market is a seller's market there is more activity in base metal production. On the other hand, in a buyer's market, activity subsides and producers go a-begging.

38. Other Government activities in the line of mining promotion are long-term loans for rehabilitation, development and expansion purposes, and recently, the monetary decontrol program which enables our mineral producers to get higher peso exchange rates from the dollar proceeds of their mineral exports.

Conclusion

39. Our mineral resources picture is certainly something to be optimistic about. While before the war we were known principally as a producer of gold, now we produce twelve metal commodities in substantial amounts. The Philippines is still among the top ten gold producers of the world. Our refractory chromite export to the U.S. supplies that country with 80% of its requirements. Our copper production is 13th among those of the free world. We are one of the few quicksilver sources in the mineral market and we may yet make a dent in the molybdenum mart.

40. All the aids and/or incentives previously mentioned from the Government, whether legal or technical, have one object in common, that is, the promotion of the mineral resources development. In a few of these we may not have achieved as much as was expected (as in the rehabilitation of more pre-war mines, in the matter of loans, and in the nickel-iron smelting project) but on the whole the effect of the majority of them is a new awakening and revitalization of the country's mineral industry, metals, non-metal and petroleum.

41. In no time in the nation's history were investors as minerals conscious as in the post-war period. Our mining industry could have attained its pre-war status and perhaps surpassed it, were it not for the financing difficulties. But financing difficulties and precarious economic balancing are not the exclusive lot of our Government and private sector. It is also the lot of many nations throughout the world, even big and small, and especially the newly-freed ones and the so-called underdeveloped, because the very nature of world economics and national growth seem to require that they pass through this stage of growing pains. It is a consoling thought that in the opinion of world economists our country as a whole has not been too badly off.

42. The post-war period has given birth to four out of five large copper producers today, seven iron mines, two chrome mines, one quicksilver mine, one rich lead and silver mine of short duration, a producer of molybdenum and a host of producers of non-metals which have not been exploited before. In this post-war period, we have put up six large cement plants, another big glass factory and a ferro-alloys plant. Soon we may have an oil producer, no matter how small, and there are already two refineries in operation with two more to go on stream in a few months. Perhaps even the establishment of our nickel industry is not so far distant.

43. In a free enterprise economy like ours and under conditions of abundant resources, mineral development and utilization can be brought to their highest level and in the minimum of time provided close cooperation and mutual understanding of objectives and problems exist between the Government and private sector. As shown by recent events, the present Administration is already providing bigger and better incentives as circumstances will allow and the private sector on the other hand is responding with greater expansion of operation and diversification into new mineral enterprises with characteristic courage and resolve. From here on we can look forward to a more rapid acceleration in our mineral resources development in the Philippines.

249 E - Oct. 1962 - 1,600